DOCUMENT RESUME

ED 108 659 IR 002 184

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TITLE Mind, Languages, and Literacy.
PUB DATE 29 Nov 74
NOTE 9p.; Paper presented at the Annual Convention of the National Council of Teachers of English (New Orleans, Louisiana, November 29, 1974)

EDRS PRICE MF-$0.76 HC-$1.58 PLUS POSTAGE
DESCRIPTORS *Cerebral Dominance; Intellectual Development; Intelligence Quotient; Language Ability; Language Research; *Learning Modalities; Mental Development; Neurological Organization; Nonverbal Ability; Perceptual Development; Reading Ability; Reading Research; *Television Viewing; *Verbal Ability; Visual Learning; *Visual Literacy

ABSTRACT

For the past 100 years we have been acting as if education in school was of words, by words, and for words, but in fact verbal literacy was preceded by visual literacy when humans communicated with body language before they had speech. American educators have been concentrating efforts on the left hemisphere of the brain in which the verbal language skills, including reading and writing, develop and ignoring the right hemisphere of the brain in which visual sequencing, visual literacy, and visual patterning develop. Quite by accident, television has begun to cultivate the right side of the brain. That this may be so was discovered when Dr. Robert Thorndyke and others began to revalidate the Stanford-Binet IQ test, and it was found that the IQ of children changes, rising sharply at about age 2 when children begin paying attention to television and declining at age of 5 1/2 when children begin school and are pressed in the direction of verbal activities and forced away from the visual activities in which they have become skilled. Programs in several schools have shown that training in visual skills can produce a marked increase in verbal skills. (KKC)

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MIND, LANGUAGES, AND LITERACY

BY

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THE NATIONAL COUNCIL OF TEACHERS OF ENGLISH

NEW ORLEANS, LA. NOV. 29, 1974

IR 000 184

MIND, LANGUAGES, AND LITERACY

Since I am speaking to people in the English-teaching community, and what I may say hereafter may be regarded as reflecting some hostility to language teaching, it may be useful if I give you a little background on myself. I am a verbal person. I started out my professional career as a writer. I love language and languages, in fact I can stumble around in several. I write poetry, not very good poetry, but sometimes it pleases others. I grew up years before television and in a house of readers. I read a lot, and I talk a lot, many times too much. In other words, I am a very verbal person.

For the past 100 years we have been acting as if education in school was of words, by words, and for words. Because we had no reason to think differently, we have been acting as if literacy is something so completely and essentially verbal that only verbal aspects deserve attention or training. Until the rise of visual technology permitting what is in effect writing with visual images, verbal literacy was certainly important and visual literacy just or certainly less so.

However, visual literacy, of a sort, actually preceded verbal literacy. Before humans had speech, they communicated with body language, in fact, reading body language was essential to survival. The first kind of writing was with pictures, and it ornaments the walls of caves in some parts of the world. It is interesting that those pictures were used sequentially somewhat like words. It is evident, also, that over many hundreds of years those pictures were simplified and conventionalized and were used more and more symbolically. Hieroglyphics emerged from such systematic sequential use of conventionalized visual images. Chinese writing and the Japanese writing called Kanji had similar origins.

But whether visual literacy of a sort preceded verbal literacy or not, we educators have made tremendous claims for words, spoken language, and most especially written language. What do we claim? A careful analysis of English curricula reveals a number of skills and attributes we believe are inextricably linked with verbal development. We have heard it asserted and we have tended to believe that thinking is verbal. Logic is accepted as being verbal. Organization of information is accepted as being a verbal skill. Analysis and sequencing are regarded as being verbal skills. Perhaps all these assumptions can be best summed up by a quotation from the November issue of the Phi Delta Kappan magazine. In an article written by Thomas Bradford Roberts, he said, "Words, formulas, sequences and cognitive information make up most current teaching. This type of learning takes place in the left hemisphere of the brain. While the left half is verbal, analytical, calculating, reasoning, active, and linear, the right hemisphere is pictorial, intuitive, receptive, and holistic."

Let's examine some of these assertions because views of this kind have characterized if not infected education for some years, unfortunately to the very serious detriment of the young, at times. The implication of all these assumptions is that intelligence and skills in reading as

well as other verbal skills are all tied together somehow. People who cannot perform verbally are assumed to be less intelligent. However, research by Dr. Gene Symes of the National Institute for Mental Health provides the basis for a somewhat different view. The study was called Unexpected Reading Failure.

What Dr. Symes did was try to ascertain what the causes were for children failing to learn to read who had no particular reason, apparently, for failing to learn to read. In a Virginia school system, teachers had identified approximately 250 such third-graders. Dr. Symes went into the history of each youngster in the group, looking for any possible cause for reading failure. As they examined the histories, in some cases, they found that a child of a family had a brother or sister who had had reading trouble; they eliminated that child from the study. What they did, in fact, was eliminate all children for whom there appeared to be any suspicion of a cause. For instance, if the parents were separated, or the father unemployed, they removed the child from the experiment. By this process, they eliminated all except 52 youngsters, all boys. They then subjected those 52 boys to 76 different kinds of perceptual, conceptual, cognitive, and other tests. They came to some rather interesting conclusions. All these boys had a very high capacity for three-dimensional visualization. In fact, their problems in reading were in inverse proportion to the degree to which they could visualize three-dimensionally. In other words, the better they could see things three-dimensionally, the more trouble they were having reading.

The authors of the study conclude that in the future if we want to identify chess players, military strategists, engineers, architects, and other high-conceptual people early, we should look for boys having trouble reading in the third grade! It is an interesting fact that the fathers of these boys were in almost every case architects, engineers, designers of television programs, advertising specialists, etc. What is perhaps most significant is that the authors believe that <u>all</u> people have these capacities but that about 33 percent of the population have these capacities to an exceptional extent.

Let's look at another interesting situation. Recently, the Journal of Learning Disabilities, had an article entitled Visually Mediated Thinking: A Report of the Case of Albert Einstein. What the article reports in brief is that Einstein did not speak at all until the age of three and that he was so nonverbal that by the age of eight his poor performance in school was a source of great anxiety to his parents. He was doing so dreadfully poorly that his parents, in desperation, sought another kind of school for him. Fortunately, there were in existence a few schools conducted on a pattern of schooling founded by the Swiss educator, Pestalozzi. Pestalozzi believed that "conceptual thinking is built on visual understanding." Pestalozzi also said, "Visual understanding is the basis of all knowledge." Einstein was entered into a Pestalozzi school and began to flower intellectually. Years later, speaking about

his own thinking, Einstein said that he thought entirely visually and that he went to words only when he was very sure that his ideas were fully worked out.

Presented with the case of Einstein, we can surely not say that his thinking was verbal, or that intelligence depends upon being verbal. Einstein evidently had most unusual visual imaginative or analytical or reasoning powers. They were not, however, verbal powers. Some might argue that this case is of no general significance because Einstein was a most unusual genius and most of our children are not visual like Einstein. But is this so? The work by Dr. Gene Symes seems to tell us that a very considerable portion of our population, perhaps at least 33 percent, is visual too.

What do psychophysiologists say about all of this? In a recent analysis of research and reports in this field, I came upon some facts from which can be distilled a very interesting conclusion. If a person who knows English has a stroke, and the left hemisphere of his brain is damaged, his capacity to read or write may be lost permanently if he is an adult. This is because verbal language skills tend to develop in the left hemisphere, including those skills connected with reading and writing.

But suppose the person who is afflicted by the stroke is not English but Japanese? The Japanese have at least two systems for writing their language; one is called Katakana and the other is called Kanji. Katakana is a letter system in which the letters represent sounds somewhat as English letters are used to represent sounds in writing English. Kanji, however, is a visual symbol system in which the symbols represent a concept rather than a sound. There is, for instance, a Kanji symbol for the idea "east" and another Kanji symbol for the idea "capital." When these two symbols are placed side by side, or combined, the combination says "east capital" and to a Japanese that means Tokyo.

What happens if a Japanese person who can read and write in both Katakana and Kanji has a left hemispheric stroke? He will probably lose the capacity to read and write in Katakana, that is in the letter system in which the letters represent sounds, as English sounds are represented by letters, but he will not lose the capacity to read and write in Kanji, the visual system in which the symbols represent concepts! In other words, the capacity to read and write Kanji, appears to be seated in the right hemisphere of the brain. Furthermore, Kanji symbols are used sequentially to say things in Japanese just as we use letter symbols sequentially to represent English. Accordingly, we have strong indications that the visual sequencing of symbols, and therefore visual literacy, rests in the right hemisphere, not the left.

The implications of this for education become considerable as soon as you start weighing them. In education, especially in the teaching of English, we have over many years worked assiduously to develop systematic ways of teaching logic, order, structure, and many other so-called cognitive manipulative skills by using words. We have, without realizing it, been concentrating our efforts on one hemisphere, the <u>left</u>. But if

visual sequencing and visual literacy and visual patterning are right-hemisphere activities or phenomena, we have been neglecting a tremendous asset, the other half of the brain.

Fortunately, thanks to visual technology, we are now in a position to make use of this asset in preparing our young people to deal expertly with their future, to communicate better with each other; in fact, to achieve all of the things that we customarily regard as the proper goals of education. Quite by accident, we have begun to cultivate the right hemisphere of the brain and to develop it tremendously. Television, coming into all American homes by about the year 1955, began to affect nearly all children in the United States starting as young as 1 1/2 years.

That our children entering school are very different than the children of 20 years ago is an observation of many teachers old enough to remember the kids of that time. Today's kids are a contrast. They are better informed and brighter than any prior generation, and they are better informed and brighter very likely just because of television! They have become, to an appreciable extent, visually literate by means of television.

An interesting demonstration of the extent that this may indeed be so exists in one of the leading publications on measuring intelligence. The Stanford-Binet, sometimes called the "IQ test" was established in 1927 on the basis of the population of that time. "Normal" intelligence was established as an IQ of 100 at whatever age the person happened to be from birth to death. In 1972, Dr. Robert Thorndyke and others began to revalidate the Stanford-Binet. They discovered that a most remarkable thing had happened between 1927 and 1972. The IQ of the average pre-school child in the United States was no longer 100! Beginning at the age of about two, the IQ of United States children rises sharply until at the age of about 3 1/2 the IQ is near 110. It continues to rise slightly until about the age of 5 1/2; then it begins to decline until at about the age of 8 1/2 it reaches 102. At about nine, it begins to rise a little bit but on a very gradual slope upward.

The remarkable things is the tremendous bump between the ages of two and 5 1/2. What factor in our cultural environment could be responsible for this tremendous increase in IQ in these children? The only factor that appears to hold the necessary promise, and the only factor that appears to be sufficiently omnipresent is television. When does the IQ rise begin? At about the time that children begin to observe television and to pay attention to it. When does the decline begin? At the time when children enter school and begin to be pressed in the direction of verbal activities and forced away from the visual activities in which they have become so skilled. Note also that there is no Sesame Street or Electric Company types of programs for children between six and twelve years. What they get on TV is the regular programs for adults. I wish I knew what that says about you and me!

There is additional evidence. One of the colleagues of Dr. Thorndyke is doing an item-by-item analysis of the scores of children on the Stanford-Binet tests. He is attempting to ascertain which items of the test are responsible for the rise in IQ. Dr. Thorndyke was kind enough to suggest to me that I might with justice feel that the hypothesis concerning television and visual literacy tends to be confirmed by what is being found. The test items upon which these children excel and which are responsible for increase in IQ are nonverbal or visual items.

Why should TV cause this tremendous rise in IQ? First, it is visual, and the eye is our most potent communicative organ. Second, what is presented on TV is nearly always intentional communication, that is, it is presented with the idea of communicating something precise or definite. Third, it is sequential or chronological or logical. It is generally, in fact, linear very much as sequences of words are linear. Finally, what is presented on TV is conventionalized; by that I mean that the visual symbology used has meanings that are culture based and a structure that is learned by use, somewhat as words are culture based and are utilized in structures established by use.

Can we sustain the intellectual development that is apparently begun through television and then subsequently, apparently, reduced by inappropriate experiences in school? The evidence from visual literacy programs in schools seems to say that we can. For instance, it says that one of the most important possible things we can do is to make it easy for children themselves to use pictures of various kinds to communicate. Such "pictures" can be drawings, illustrations cut from magazines or newspapers, cartoon sequences, photographs they take themselves, slide sequences, movies, or video. What is essential is that our children have the opportunity to utilize pictures in communication, saying things they want to say about themselves or people about whom they care. It is important to permit them to sequence pictures and to use those sequences in their communications. It is important that their opportunities to communicate verbally are associated with their visual sequences so that they have the opportunity to talk about sequences of pictures they make or to write about sequences of pictures they make.

What kind of evidence exists that programs that offer such opportunities succeed in doing the things we are talking about? I will cite only two examples. In Buffalo, New York, there is a program in the school system called Project Early Push. Project Early Push involves about 2000 youngsters between the ages of four and five. Most are from the inner city. Project Early Push is a visual literacy type of program in which the use of pictures and other kinds of visual communication is actively pursued.

In the school year 1973-74, the children in Project Early Push were pretested with the Illinois Test of Psycholinguistic Ability. Seven months later, they were tested again to see what, if anything, had happened. The scores are remarkable. For instance, in a seven-month

period, when they might have been expected to gain seven months in intellectual growth, their gain in visual memory was 21 months, not seven months. Their gain in visual closure was 18 months, not seven months. Their gain in visual association was 18 months, not seven months. And so on. What did they do on verbal scores? Their gain in verbal expression was 12 months, not seven months. Their gain in total psycholinquistic skills was 13 months, not seven months. And their gain in mental age was 13 months, not seven months. Such spectacular gains are being brought to the attention of the U.S. Office of Education in a meeting to be held in the near future.

The other example I will use comes from the town of Enfield, Connecticut. In Enfield they have what they used to call a high-school social studies program in which the kids write visually and talk verbally by making slide sequences with sound tapes. They make these about matters of concern to them but linked somehow with social studies objectives in Connecticut. When this program was first begun, it was initiated for the benefit of inner city youngsters who were expected to drop out. Since the program began, no youngster associated with this particular program has dropped out. Furthermore, the people in Enfield school system are so persuaded of the values of the program that it has now been extended to both of the high schools in Enfield and to nearby schools in Connecticut. The program is now offered to all students and is required of all students who enter the social studies program.

What happens to youngsters in this program? Many of them go to college, and this includes youngsters who have made very poor scores verbally. It has been found that their verbal scores improve dramatically as they are engaged in this visual communication program. The school system is enthusiastic about the program for many reasons but some of those reasons rest upon achievements of their youngsters that are of interest to the U.S. Office of Education, and other federal agencies. We educators are more and more concerned, these days, with the fact that many of our young people finish school with very little sense of connection with the adult world. The feeling our kids seem to have is that <u>what</u> they do is of little importance on the outside to the outside world; what they <u>think</u> is of little interest to the outside world; and what they would <u>like</u> to accomplish <u>cannot be</u> accomplished in the outside world.

But in Enfield, young people learn differently. For instance, a group of the students in the Enfield program decided to do a community survey and report on the psychological services available to adolescents who are in trouble. That report was done so superlatively that it was honored at a National Meeting of the National Association for Mental Health, and that association later had the young people connected with the program prepare a manual on how to run such programs! That particular manual is now distributed by the National Association for Mental Health under the title "When People Cry Help." It was composed both visually and verbally by the young people in Enfield high schools.

Another accomplishment of the Enfield young people has to do with their recognition of their community and its cultural and historical heritage. The young people in the program in Enfield have established a Bicentennial Center which produces material about the history of that community, of nearby communities, and of the interrelationships between what happened in Enfield and elsewhere in the early history of the United States. The work they have done is so remarkable that two visits have already occurred from the Bicentennial Commission in Washington. The Enfield model is being recommended by the Bicentennial Commission to all schools in the United States. What have the Enfield youngsters learned? One thing they have learned is to communicate, and to communicate well, in the mediums of their time, which is a visual-verbal medium not just a verbal medium.

I will close by talking about a school in Rochester, New York, that is a private school. The name of the school is Harley. Harley has been engaged in visual literacy programs for some time, in fact almost since the beginning of visual literacy activities in this country. They began, as many schools do, by offering visual literacy experiences to their young children with the idea that the "slow" learners might benefit from the experience and improve verbally when verbal improvements seemed to be hard to come by. They succeeeded. Next, they began to offer the programs to their average students, giving them the opportunity to create visual communications and tie those visual communications together with verbal ones so that an effective combination was created. This seemed to work too. Finally, it occurred to them that their "brightest" youngsters might benefit from having these opportunities too. That not only succeeeded, but succeeded spectacularly. In fact, Harley School has built a building for communications studies. When questioned about why they built it, they said, in effect, Jack, we didn't build this primarily for our "slow" students, although visual literacy programs gave them successes; we didn't do it because of our "average" children, although visual literacy programs gave them successes; we did it primarily because of what happened to our brightest students. When we offered them visual literacy experiences, they really turned on intellectually and in every other way. Accordingly, over the doorway of Harley School's new communication building will be a legend that might be worth consideration by all educators. That legend will read "To foster literacies of all kinds."

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11/26/74